

Title (en)
TWO-STEP ELECTROCHEMICAL PROCESS FOR COATING MAGNESIUM

Title (de)
ZWEISTUFIGES ELEKTROCHEMISCHES VERFAHREN ZUR BESCHICHTUNG VON MAGNESIUM

Title (fr)
PROCEDE ELECTROCHIMIQUE EN DEUX ETAPES POUR APPLIQUER UN REVETEMENT SUR LE MAGNESIUM

Publication
EP 0688370 B1 19970604 (EN)

Application
EP 93905839 A 19930209

Priority

- CA 2155566 A 19930209
- US 9301165 W 19930209
- US 72961291 A 19910715
- US 94332592 A 19920910

Abstract (en)
[origin: US5266412A] A two-step process for the coating of magnesium and its alloys is disclosed. The first step comprises immersing the magnesium workpiece in a first electrochemical solution comprising about 3 to 10 wt-% of a hydroxide and about 5 to 30 wt-% of a fluoride having a pH of at least about 12. By controlling a current density to about 10 to 200 mA/cm², an increasing voltage differential is established between an anode comprising the pretreated article and a cathode also in contact with the electrolytic solution. Next, the article is immersed in an aqueous electrolytic solution having a pH of at least about 11 and which solution is prepared from components comprising a water soluble hydroxide, a fluoride source and a water soluble silicate in amounts to result in an addition of about 2 to 15 g of a hydroxide per liter of solution, about 2 to 14 g of a fluoride per liter of solution and about 5 to 40 g of a silicate per liter of solution. Again, by controlling the current density to about 5 to 100 mA/cm², an increasing voltage differential of at least about 150 volts is established between an anode comprising the pretreated article and a cathode also in contact with the electrolytic solution. This process results in a superior coating which has increased abrasion and corrosion resistance.

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